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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,794	05/04/2001	Adrian Boariu	NC17530	7888

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EXAMINER
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ZHENG, EVA Y

ART UNIT	PAPER NUMBER
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2634


DATE MAILED: 03/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/848,794

**Applicant(s)** 

BOARIU, ADRIAN

**Examiner**

Eva Yi Zheng

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 11-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

***Response to Arguments***

1. Applicant's arguments with respect to claims 1-9 and 11-19 have been considered but are moot in view of the new ground(s) of rejection.

**DETAILED ACTION**

***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "matched filter" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claim 1 is objected to because of the following informalities: on line 8, the period after recitation: "once combiner" should be deleted.

Appropriate correction is required.

4. Claim 1 is objected to because of the following informalities: recites the limitation "said an apparatus" in line 4 should be changed to – said apparatus --.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-9 and 11-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Dabak et al (US 6,775,260 B1).

a) Regarding claim 1, Dabak et al. disclose apparatus for a communication system in which space-time encoded data is transmitted at a first location (112 in Fig. 1) and at

least at a second location (114 in Fig. 1) for communication to a receive station (120 in Fig. 1), said receive station for decoding the space-time encoded data received thereat, said an apparatus comprising:

a decoder (260 in Fig. 2) coupled to receive indications of the space-time encoded data received at the receive station, said decoder for directly combining values (261 in Fig. 2) of the space-time encoded data transmitted from different ones of the first and at least second locations to the receive station and for detecting values of symbols of the data (260 in Fig. 2), once combined.; and

wherein the values of the space-time encoded data transmitted at the first location and values of the space-time encoded data transmitted at the second location are correlated (261 in Fig. 2) with one another and wherein said decoder includes a matched filter (as shown in Fig. 9A) for performing successive matched filter operations upon the indications of the space-time encoded data received thereat (Col 10, L41-Col 11, L26).

b) Regarding claim 11, Dabak et al. disclose a method for communicating in a communication system in which space-time encoded data is transmitted at a first location (112 in Fig. 1) and at least a second location (114 in Fig. 1) for communication to a receive station (120 in Fig. 1), said method for decoding the space-time encoded data, once received at the receive station, comprising:

directly combining values (261 in Fig. 2) of the space-time encoded data transmitted from different ones of the first and at least second location to the receive station;

detecting values of symbols of the data (260 in Fig. 2), once combined during said operation of directly combining values of the space-time encoded data; and

wherein values of the space-time encoded data transmitted at the first location and values of the space-time encoded data transmitted at the second location are correlated (261 in Fig. 2) to one another and wherein said method further comprises an operation of performing successive matched filter operations (as shown in Fig. 9A) upon the indications of the space-time encoded data received thereat (Col 10, L41-Col 11, L26).

c) Regarding claim 2, Dabak et al. disclose the apparatus of claim 1, wherein the space-time encoded data transmitted at the first and at least second locations comprises a space-time encoded block of data (200 in Fig. 2), and wherein said decoder directly combines values of the space-time encoded block (261 in Fig. 2).

d) Regarding claim 3, Dabak et al. disclose the apparatus of claim 2 wherein said decoder further forms a sequence estimate (as shown in Fig. 6B; Col 6, L10 - Col 7, L9), the sequence estimate formed of detected values of the data, once combined.

e) Regarding claim 4, Dabak et al. disclose the apparatus of claim 1 wherein the communication system comprises a radio communication system (inherent as CDWA; Col 1, Col 14-17), wherein the first location at which the space-time encoded data is transmitted comprises a first antenna transducer (112 in Fig. 1), wherein the second location at which the space-time encoded data is transmitted comprises a second antenna transducer (114 in Fig. 1), the second antenna transducer spaced apart from the first antenna transducer (as shown in Fig. 1), wherein the receive station comprises

a radio receiver (120 in Fig. 1), and wherein said decoder is coupled to receive indications of the space-time encoded data received at the radio receiver (260 in Fig. 2).

f) Regarding claims 5 and 15, Dabak et al. disclose wherein the space-time encoded data transmitted at the first antenna transducer is transmitted upon a first communication path to the receive station (PATH 1 in Fig. 1), wherein the space-time encoded data transmitted at the second antenna transducer is transmitted upon a second communication path to the receive station (PATH j in Fig. 1), wherein the receive station comprises at least one receive-antenna transducer (120 in Fig. 1) coupled to transducer indications of the space-time encoded data transmitted upon the first and second communication paths, respectively, into electrical form, and wherein the indications of the space-time encoded data to which said decoder is coupled to receive are in electrical form, subsequent to reception at the receive antenna transducer (as shown in Fig.1 and 2).

g) Regarding claims 6 and 16, Dabak et al. disclose wherein the directly-combined values of the space-time encoded data formed by said decoder comprise a real-valued component portion and an imaginary-valued component portion (inherent as Rayleigh fading parameter; Col 6, L10 - Col 7, L9).

h) Regarding claims 7 and 17, Dabak et al. disclose wherein detected values of the symbols of the data, once combined, formed by said decoder comprise a detected value of the real-valued component portion and a detected value of the imaginary-valued component portion (inherent as Rayleigh fading parameter; Col 6, L10 - Col 7, L9).

- i) Regarding claims 8 and 18, Dabak et al. disclose wherein the receive station further comprises a detected-data value operation for operating upon detected data, the detected data upon which said detected-data value operates comprised of the detected values of the symbols formed by said decoder (Col 6, L10 - Col 7, L9).
- j) Regarding claims 9 and 19, Dabak et al. disclose wherein the detected values of the symbols formed by said decoder comprise at least a first block of space-time decoded data symbol values (Col 6, L10 - Col 7, L9).
- k) Regarding claim 12, Dabak et al. disclose the method of claim 11 wherein the space-time encoded data transmitted at the first and at least second locations comprises a space-time encoded block of data (200 in Fig. 2) and wherein said operation of directly combining values of the space-time encoded data comprises directly combining values of the space-time encoded block (261 in Fig. 2).
- l) Regarding claim 13, Dabak et al. disclose the method of claim 12 further comprising the an operation of forming a sequence estimate, the sequence estimate formed of detected values of the data detected during said operation of detecting values of symbols of the data (Col 6, L10 - Col 7, L9).
- m) Regarding claim 14, Dabak et al. disclose the method of claim 11 wherein the communication system comprises a radio communication system (inherent as CDWA; Col 1, Col 14-17), wherein the first location at which the space-time encoded data is transmitted comprises a first antenna transducer (112 in Fig. 1), wherein the second location at which the space-time encoded data is transmitted comprises a second antenna transducer (114 in Fig. 1), the second antenna transducer spaced apart from



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the first antenna transducer, wherein the receive station comprises a radio receiver (120 in Fig. 1), further comprising the operation of receiving indications of the space-time encoded data at the radio receiver prior or said operation of directly combining values of the space-time encoded data (261 in Fig. 2).

### ***Conclusion***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is (571) 272-3049. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.

#### **Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

#### **or faxed to:**

**(703) 872-9314 (for Technology Center 2600 only)**

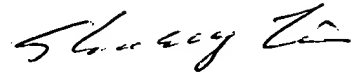
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Eva Yi Zheng  
Examiner  
Art Unit 2634

March 1, 2005



**SHUWANG LIU**  
**PRIMARY EXAMINER**